

CENTENNIAL CHALLENGES UPDATE - April 2006

In This Issue:

- CENTENNIAL CHALLENGES BREAKING NEWS: Astronaut Glove Competition 2006 Workshop; Four New Competitions, Five Total, Now Open for Registration
- CENTENNIAL CHALLENGES IN THE NEWS: New York Times Article; AIAA Aerospace America Article
- CLASSIC CENTENNIAL CHALLENGES HIGHLIGHTS: First CENTENNIAL CHALLENGES Competitions - Beam Power and Tether
- SPECIAL CENTENNIAL CHALLENGES ANNOUNCEMENTS: Comments Received for Possible Future Challenges;
- CENTENNIAL CHALLENGES NOTES
- LINKS TO COMPETITIONS
- FUTURE PUBLIC APPEARANCES

===== CENTENNIAL CHALLENGES BREAKING NEWS =====

ASTRONAUT GLOVE COMPETITION 2006 WORKSHOP

The Astronaut Glove Competition 2006 Workshop is scheduled for Monday, April 24, 2006, 8am-5pm ET, at the New England Air Museum (www.neam.org), Bradley International Airport, Windsor Locks, Connecticut.

This "kickoff" workshop will provide information about Centennial Challenges, current astronaut glove technology, and the Astronaut Glove Challenge itself. NASA and industry experts, including astronauts, are expected to speak. The Workshop will give attendees the opportunity to ask questions of the experts and to meet others in this community of interest. For further information, visit www.astronaut-glove.us

FOUR NEW COMPETITIONS, FIVE TOTAL, NOW OPEN FOR REGISTRATION

In 2005, Centennial Challenges announced the selection of five Allied Organizations and the eight competitions they will be conducting. Now, Centennial Challenges and the Allied Organizations are announcing the opening of registration for five of the original eight competitions. The five competitions for which teams will soon be able to register include: 2006 Tether Challenge, 2006 Beam Power Challenge, the 2007 Astronaut Glove Challenge, the 2007 Regolith Excavation Challenge, and the Moon Regolith Oxygen (MoonROx) Challenge.

Links to all these competitions are given at the bottom of this email.

===== CENTENNIAL CHALLENGES IN THE NEWS =====

NYT Article: The New York Times ran a full-page article on Centennial Challenges on Wednesday, April 5. The story featured a picture of Steve Jones and his climber from the October Beam Power Challenge

competition. You can read or download the article from the following URL: www.nytimes.com/2006/04/05/technology/techspecial4/05nasa.html

AIAA Aerospace America Article: There was a feature article in the AIAA magazine "Aerospace America" on Space Elevators. A one-page "side bar" of the story was the Beam Power and Tether Challenges conducted by the Spaceward Foundation last year. The article can be read or downloaded off the web at the following URL:

www.aiaa.org/aerospace/images/articleimages/pdf/AA_Mar06_IAN.pdf

===== CLASSIC CENTENNIAL CHALLENGES HIGHLIGHTS =====

FIRST CENTENNIAL CHALLENGES COMPETITIONS - BEAM POWER AND TETHER

On October 21-23, 2005, The Spaceward Foundation conducted the very first Centennial Challenges competitions, the 2005 Beam Power Challenge and the 2005 Tether Challenge. The "Elevator Games 2005," as they were called, were a great beginning for the Centennial Challenges program. With only 6 months of preparation time, seven teams (originally eight, but two merged into one due to Hurricane Katrina) participated in the climber competition and four in the tether tug-of-war. The variety and ingenuity of the team's entries were inspiring.

In the Beam Power Challenge, teams had to build robotic climbers that could scale a 200-foot cable powered only by the beam from an industrial searchlight. The team that lifted the most mass in a certain time would win the \$50,000 prize. Although no team made it to the top of the cable, Team SnowStar from the University of British Columbia achieved the first beam-powered climb of approximately 20 feet. The University of Saskatchewan Space Design Team had the farthest beam-powered climb, approximately 40 feet.

In the Tether Challenge, teams had to create high-strength, low-weight tethers, which were stretched to their limits in a head-to-head, single-elimination competition. The Centaurus Aerospace Team produced the strongest tether. But to claim the \$50,000 prize, the strongest team tether had to beat the house tether, constructed from the best commercially-available material, by a margin of 50 percent. Centaurus fell just short.

The two \$50,000 prizes were left unclaimed and are now combined with the purses for the 2006 Challenges. Congratulations and thanks go out to the teams and the Spaceward Foundation, including Ben and Meekk Shelef, Marc Schwager, Vern McGeorge, Falline Danforth, Bob Winmill, David Carty and Eric Little, and the rest of the more than 50 volunteers helping out at the event! Additional results will be made available on the Centennial Challenges website.

The Spaceward Foundation is a public-funds non-profit organization dedicated to furthering space science and technology in education and in the public mindshare. Spaceward includes two leaders in the space elevator field: Dr. Bradley C. Edwards, who is widely recognized as the developer of the modern Space Elevator concept, which he researched under a NASA Institute for Advanced Concepts study, and Mr. Michael J. Laine, the founder and president of LiftPort Inc., a company devoted to the commercial development of an elevator to space.

===== SPECIAL ANNOUNCEMENTS =====

COMMENTS RECEIVED FOR POSSIBLE FUTURE CHALLENGES

On 22 February 2006, the input from the general public was solicited in the Request For Comments on Draft Rules for Possible Centennial Challenges Competitions. The closing date for these comments was 27 March 2006.

Centennial Challenges would like to thank everybody that took time to provide comments in response to the Request For Comments on Draft Rules for Possible Centennial Challenges Competitions.

In the coming weeks and months, Centennial Challenges will review the comments received and, at the appropriate time, make an official announcement to signal the start of the competitions we select to conduct. Again, we thank you for your contribution of time and effort, and we hope you will continue to participate in this exciting program.

===== CENTENNIAL CHALLENGES NOTES =====

- The California Space Education & Workforce Institute (CSEWI) has received more than 90 "Interested Party" web-form submittals as of January 31 for the Regolith Excavation Challenge, to be held May 12, 2007.

- The Spaceward Foundation has registered 19 teams for the 2006 Beam Power Challenge and 4 for the 2006 Tether Challenge as of the end of January.

- On December 2, 2005, at the California Space Authority Transforming Space Conference, Los Angeles, California, Centennial Challenges Program Manager Brant Sponberg announced NASA's intention to negotiate Space Act Agreements with the California Space Authority CSEWI to hold the 2008 Planetary Unmanned Aerial Vehicle Challenge and the Spaceward Foundation to hold the 2007 and 2008 Telerobotic Construction Challenges.

===== LINKS TO COMPETITIONS =====

Visit the Centennial Challenges and the following websites for up to date status on the Challenges:

2006 Beam Power Challenge

- Challenge date: Aug 4-6, 2006
- Location: Mountain View, California
- Collaborator: Spaceward Foundation
- Total Purses: \$200k
- Challenge home page:
www.elevator2010.org/site/competitionClimber2006.html
- Rules:
www.elevator2010.org/site/documents/climber_rulebook_2006.current.pdf
- Registration: www.elevator2010.org/site/competitionClimber2006.html

2006 Tether Challenge

- Challenge date: Aug 4-6, 2006
- Location: Mountain View, California

- Collaborator: Spaceward Foundation
- Total Purses: \$200k
- Challenge home page: www.elevator2010.org/site/competitionTether2006.html
- Rules: www.elevator2010.org/site/documents/tether_rulebook_2006.current.pdf
- Registration: www.elevator2010.org/site/competitionTether2006.html

2007 Astronaut Glove Challenge

- Challenge date: Early-Mid 2007
- Location: To be determined
- Collaborator: Volanz Aerospace/Spaceflight America
- Total Purses: \$250k
- Challenge home page, rules: www.astronaut-glove.us
- Registration: to be announced

2007 Regolith Excavation Challenge

- Challenge date: May 12, 2007
- Location: Santa Maria Fair Park, Santa Maria, California
- Collaborator: California Space Education & Workforce Institute (CSEWI)
- Total Purses: \$250k
- Challenge home page: www.californiaspaceauthority.org/regolith
- Rules: www.californiaspaceauthority.org/regolith/regolith-rules.pdf
- Registration: to be announced

2007 Personal Air Vehicle (PAV) Challenge

- Challenge date: Mid-2007
- Location: Santa Rosa, California
- Collaborator: Comparative Aircraft Flight Efficiency Foundation
- Total Purses: \$250k
- Challenge home page: www.cafefoundation.org/pav.htm
- Rules: www.cafefoundation.org/documents/TeamAgreement.pdf
- Registration: to be announced

2007 Telerobotic Construction Challenge

- Challenge date: Aug, 2007
- Location: Mountain View, California
- Collaborator, Spaceward Foundation
- Total Purses: \$250k
- Challenge home page: www.spaceward.org, to be announced.
- Rules: to be announced
- Registration: to be announced

2008 Planetary Unmanned Aerial Vehicle (PUAV) Challenge

- Challenge date: May, 2008
- Location: California
- Collaborator: CSEWI
- Total Purses: \$250k
- Challenge home page: www.californiaspaceauthority.org/html/level-one/institute.html, to be announced
- Rules: to be announced
- Registration: to be announced

2008 MoonROx (Moon Regolith Oxygen) Challenge

- Challenge date: Jun 1, 2008
- Location: First to Demonstrate - dependent on team

- Collaborator: Florida Space Research Institute
- Total Purses: \$250k
- Challenge home page: www.fsri.org/space_research_Moon_ROx.htm
- Rules: www.fsri.org/Grant%20Process%20Chart/MoonROx%20Rules.pdf
- Registration: to be announced

2008 Telerobotic Construction Challenge

- Challenge date: Late 2008
- Location: Mountain View, California
- Collaborator: Spaceward Foundation
- Total Purses: \$250k
- Challenge home page: www.spaceward.org, to be announced.
- Rules: to be announced
- Registration: to be announced

===== FUTURE PUBLIC APPEARANCES =====

- May 4-7, 2006 - Centennial Challenges participation at National Space Society International Space Development Conference, Los Angeles, CA, including panel discussion and mini-workshop.
- Jun 26-29 2006 - Centennial Challenges participation at 42nd AIAA/ASME/SAE/ASEE International Energy Conversion Conference in San Diego, CA, including paper session and mini-workshop.
- Jul 9-12, 2006 - Centennial Challenges participation at AIAA Joint Propulsion Conference in Sacramento, CA, including panel participation.
- Oct 21-22, 2006 - Centennial Challenges exhibit at X PRIZE Cup Spaceflight Exposition in Las Cruces, NM.